

Patent Application of Y. Tsukamura for  
“Simplified Method of RSA” continued

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[033] Abstract

A simplified signing algorithm of the RSA formula is as follows:

Sign

$$\begin{aligned} S_x &= M_x \{C_x\} \\ &= C_x^{M_x} \pmod{no} \end{aligned}$$

Verify

$$\begin{aligned} E_o \{S_x\} &= S_x^{e_o} \pmod{no} \\ &= C_x^{M_x \cdot e_o} \pmod{no} \\ &= N_x^{do \cdot M_x \cdot e_o} \pmod{no} \\ &= N_x^{M_x} \pmod{no} \end{aligned}$$

$$\text{Since } N_x^{do \cdot e_o} \pmod{no} = N_x$$

where

- N<sub>x</sub>** : ID # of Entity **X**, License # issued to Entity **X**
- Do** : Private Key of System Authority **O**
- Eo** : Public Key of System Authority **O**
- no** : Modulus of the key pair **Do**, **Eo**
- C<sub>x</sub>** : Secret Key of **X** where  $C_x = N_x^{do} \pmod{no}$
- M<sub>x</sub>** : Message sent by **X**
- S<sub>x</sub>** : Message signed by **X**